

Seney National Wildlife Refuge Fire History GIS Location Project (2013)

Stephen T. Rouser (Contractor) for Greg Corace (Refuge Ecologist)

Abstract and Purpose:

This project (funded by the Joint Fire Science Program through the Seney Natural History Association) contains prescribed and wildfire point and polygon data covering 1944-2012 that occurred within the boundaries of the Seney National Wildlife Refuge (SNWR) and point data from the dendrochronological work of Drobyshev et al. (2008, Canadian J. Forest Research). The intention of the project was to create a data set to provide a single source for users of GIS to access point and area fire information. Prior to this project a separate polygon data set created by the refuge covering fires from 2003-2009 was available as was the Drobyshev et al. (2008) data in a separate file. All other records of fire events on the refuge were in various forms ranging from table sets in the Fire Management Information System (FMIS) to references in refuge annual narratives. There was a clear need to establish a system showing basic location and historical information in one format. GIS using ESRI shapefiles was chosen since it shows the most promise and flexibility in future planning and modeling use. This data format should allow for less duplication of future efforts and increase the usability of fire data to not only to refuge staff but also partner agencies and researchers.

Method of Data Production:

In person visits were made to Seney National Wildlife Refuge during the winter and spring of 2013 to collect documentation of fires. All refuge files were made available for research. The vast majority of records were obtained from Fire Management, Applied Sciences Program, Annual Narratives, and the Refuge Library. The existing polygon files covering fires from 2003-2009 was also used.

For each record collected, a corresponding point and polygon (if possible) was created. Accuracy of point locations varied greatly depending on the quality of record keeping. If exact coordinates were given, then the point was easily established. Most records included a map that could establish the event location and size. In certain cases, detail of the location was limited to a section within a township/range. If this occurred and no other information could improve the accuracy, the point was centered in the section and a note was made in the comment attribute field. Records of fires that could not establish any definite location were omitted from point and polygon production. See Data Omitted section for complete list. Attribute fields were then populated with basic location and statistical information. See Attribute section for complete details. The final product was also converted to .kml files for use in Google Earth products. This allows the non-GIS user to access the information in an easy to understand format without the risk of damaging the underlying information.

Data Omitted:

During data collection, several fires were noted in annual narratives that did not have any corresponding records. Since these events could not be reasonably sited they were omitted from the final point and polygon files.

- J Dike (6/26/1946) 0.3 acres fire started by a fisherman
- G Pool (1948) 4 acre fire
- 3 Agricultural Burns (1948)
- G-H Margins Burn (1949)
- Marsh Creek Dike (8/1966) 378 Hay Bales Burned
- Field C Diversion Farm (9/14/1971)

Recommendation:

An annual maintenance plan should be developed to keep the data current. Updating fire information at the end of every field season would be an effective way to maintain the investment in this data set at a low cost to the refuge. Without consistent updating the information within these data sets will quickly lose effectiveness.

Attribute Table Definitions:

- **FID:** Feature Identification Number
- **Shape:** Feature Geometry
- **ID:** Number
- **Fire_Name:** Common name for the fire event
- **Year:** Calendar year in which fire event occurred
- **Month:** Calendar month in which fire event occurred
- **Day:** Calendar day in which fire event occurred
- **Acres:** Acreage covered as reported
- **Treatment:** Type of event (Wildfire, Prescribed, Unknown)
- **Source:** Location of the original record information.
SNWR= Seney National Wildlife Refuge
FMIS= Fire Management Information System
Annual Narrative= Annual Narrative Cabinet
PoolHistory= Pool History Folders
FireMgtPlan= Fire Management Plan
FM= Fire Management Office
Library= Seney NWR Library
WF(Date)= Wildfire Folder by Year Fire Management Office
- **Fire_Num:** Fire management information system report number
- **Org_Code:** Refuge organization code
- **Comment:** Additional notes related to data
- **Polygon:** Does a polygon of this event exist in the GIS system
- **Latitude:** Latitude of the point expressed in degrees minutes seconds
- **Longitude:** Longitude of the point expressed in degrees minutes seconds
- **Last_Modif:** Date data was last modified